Reroute Glycol Skimmer Gas

Partner Reported Opportunities (PROs) for Reducing Methane Emissions

PRO Fact Sheet No. 201

Applicable sector(s):

■ Production ■ Processing ■ Transmission and Distribution

Partners reporting this PRO: Chevron (now ChevronTexaco Corporation)

Other related PROs: Pipe Glycol Dehydrator to VRU

Compressors/Engines	☐
Dehydrators	■
Pipelines	☐
Pneumatics/Controls	☐
Tanks	☐
Valves	☐
Wells	☐
Other	☐

Technology/Practice Overview

Description

In the glycol dehydration process, rich glycol is circulated through a regenerator where the dissolved water, methane, volatile organic compounds (VOCs), and Hazardous Air Pollutants (HAPs) are vaporized and vented to the atmosphere. Some glycol dehydrators have glycol still condensers and condensate separators to recover natural gas liquids and reduce VOC and HAP emissions. The non-condensable gas from the condensate separator, which contains mostly methane, is vented to the atmosphere.

Methane Savings: 7,600 Mcf per year

Costs

Capital Costs (including installation)

■ <$1,000 ☐ $1,000 – $10,000 ☐ >$10,000

Operating and Maintenance Costs (annual)

☐ <$100 ■ $100-$1,000 ☐ >$1,000

Payback (Years)

■ 0–1 ☐ 1–3 ☐ 3–10 ☐ >10

Benefits

Reducing methane emissions was a primary justification for the project.

A partner reported rerouting the condensate separator gas, called skimmer gas, to the reboiler firebox or other low pressure fuel gas systems for fuel use. In addition to reducing methane emissions, this practice further reduces VOC and HAP emissions, and increases product revenue.

Operating Requirements

The condensate separator must operate at a higher pressure than the destination for skimmer gas combustion.

Applicability

This practice can be employed on all dehydrators with vent condensers.

Methane Emissions Reductions

Methane savings are limited to the amount of low-pressure fuel gas consumption at the site. The methane emissions savings are based on the dehydrator having a gas entrainment rate of 3 scf per gallon of TEG, and gas containing 95 percent methane. One partner reported methane savings of 24 Mcf per day per unit (8,760 Mcf per year per unit). Methane savings may be limited by the amount of low-pressure fuel gas consumption at the site.

Economic Analysis

Basis for Costs and Savings

Methane emissions reductions of 7,600 Mcf per year apply to a 20 MMcf per day dehydrator having a vent condenser, without a flash tank separator, circulating 300 gallons of glycol per hour with an energy exchange pump.

Discussion

This technology pays back quickly. Using glycol skimmer gas as a fuel directly offsets use of saleable natural gas, increasing product revenues. The significant gas savings from rerouting glycol skimmer gas to a fuel gas system will offset the low capital, operating, and maintenance costs. This practice is more cost effective for dehydrators without flash tank separators.